

## ABSTRACT



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A hologram polarized light separator does not generate heat when absorbing an unnecessary polarized component, does not degrade, has a high degree of separation, is lightweight, and allows a system to be of a small scale. Incident natural light incident normally on the surface of a hologram is separated into a first linearly polarized light ( $E_1$ ) traveling without being diffracted, and a second linearly polarized light ( $E_2$ ) polarized perpendicularly to the direction of polarization of the first linearly polarized light ( $E_1$ ). The first linearly polarized light ( $E_1$ ) passes through a substrate glass without change; the second linearly polarized light ( $E_2$ ) undergoes internal total reflection at the glass-air boundary line and cannot go out to the output side of the separator. Therefore, the separator can allow only one of the polarized components of the incident natural light to travel in a predetermined direction. A liquid crystal projection display comprising the separator is also disclosed.



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